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Clinical aspects of Clara cell 10-kDa protein/ uteroglobin (secretoglobin 1A1).

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Clara cell 10-kDa protein (CC10)/ uteroglobin (UG) is a nonglycoprotein with a molecular mass of 16 kilodaltons, which is produced by mucosal epithelial cells in the lung (Clara cells), uterus and prostate. Like other low molecular weight proteins it is catabolized in renal proximal tubules. Structurally it is a homodimer of subunits of 70 amino acids covalently bound in an antiparallel manner. It belongs to secretoglobin (SCGB) family and is assigned as subgroup 1A1. The function of the protein so far elucidated is immunoregulatory and anti-inflammatory in innate immunity. The knockout mouse of UG gene resulted in aggravation of inflammation by allergic and hyperoxic stimuli. It also showed very similar pathological features with human IgA nephropathy. The value is changed in the lung fluid and serum of various inflammatory and allergic lung diseases. Several kinds of single nucleotide polymorphisms (SNPs) in human CC10/UG gene were recently discovered; Adenine allele accumulation in G38A SNP has possible association with asthma and IgA nephropathy, being paralleled with disease severity of IgA nephropathy. Its expression is enhanced by some transcriptional factors induced by cytokines such as interferon-gamma. For cancer cells, the protein functions as an antagonist of neoplastic phenotype. CC10/UG forms one of intra- and intercellular regulators involved in inflammation and malignant transformation in the respiratory and urogenital fields.

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